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Abstract: House prices have risen quite sharply since 2000. Coming on the heels of a stock market crash, many analysts have raised the specter of collapse in house prices and have conjured up dire consequences from such a collapse. This article examines the extent of the house price rise, whether there are factors that account for it, whether prices are likely to collapse, and if they did, the macroeconomic consequences of such a decline. It suggests that the rise in prices was due to fundamental economic changes, especially a decline in real interest rates. A sharp decline in the national average price is unprecedented, but national prices have declined slowly relative to other goods and services, not by falling, but rather by failing to rise as rapidly as other prices. This has happened twice in the last twenty-five years and is likely to be the pattern in coming years, if prices return to some past average relationship.

Finally the article discusses the economic consequences of a house price collapse and argues that the recessionary implications of a price bust would be minimal. There are three main potential channels of influence, a banking sector crisis due to mortgage defaults, a decline in consumer spending as households attempt to rebuild wealth, and a decline in home building in response to diminished sales. The article argues that none of these possibilities are likely, even in the unlikely event of a major price collapse.

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Key words: housing bubble, asset price, macroeconomic risk, business cycle

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“The housing boom will inevitably simmer down. ... home prices will slow and prices could even decrease.” Alan Greenspan, Jackson Hole, Wyoming, August 27, 2005

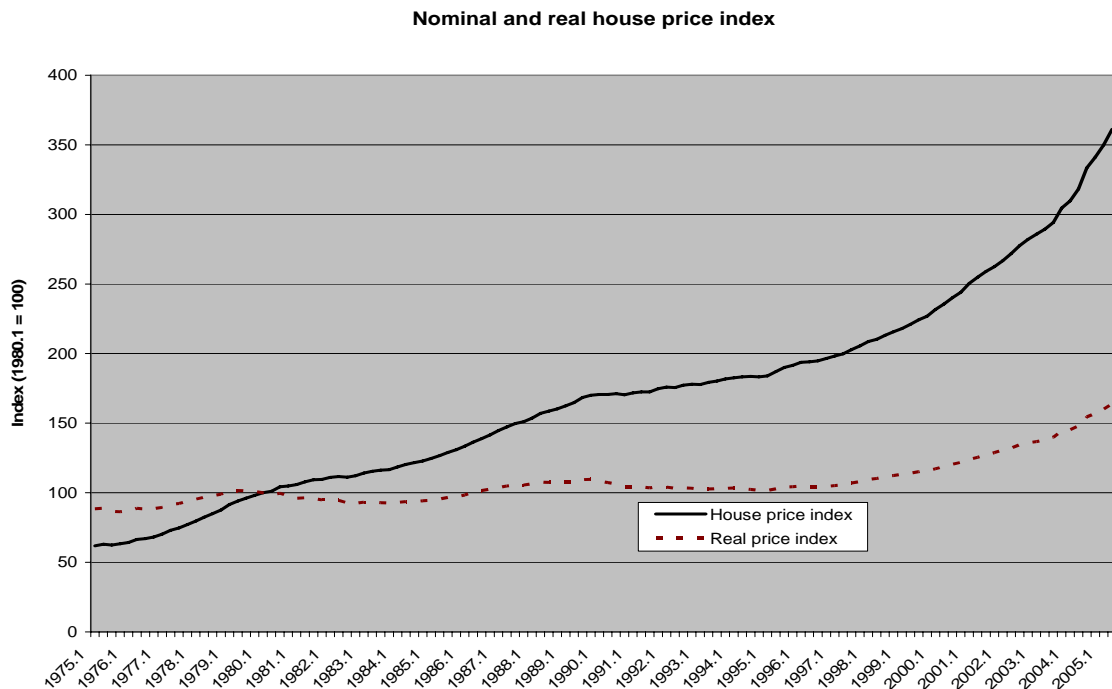
In the past year, there has been strong press attention to the run-up in housing prices in the US, England and other countries. Many analysts refer to house prices as exhibiting a “bubble,” a situation where prices are thought to be out of line with underlying economic determinants of prices or “fundamentals.” When prices are at lofty heights for no known reason other than “irrational exuberance” or speculative frenzy, the fear is that they could come crashing down as they return to a more normal or sustainable level. Recent concern raises many questions: is there a bubble, how big is it, did it play a major role in artificially boosting the economy in recent years, will it end with a pop or a slow deflation, would an end to the bubble lead to a recession or depression, would it lead to a collapse of the value of the US dollar and other asset markets? Obviously these issues are too wide-ranging to address in a brief article. Besides, there is a considerable range of views and conclusions drawn for earlier research on housing and other asset price bubbles. Nonetheless, some of the issues surrounding recent developments can be clarified and some perspective can be provided based on earlier experience.

Is there a bubble?

One sign of the difficulty in reaching a consensus on prospects for the housing market is that financial theorists are not even in agreement on what a bubble is, whether there is such a thing or how one could be identified or recognized. There is even more dissent over where bubbles could come from and how long they last or what makes them go away. Perhaps to avoid this term, Chairman Greenspan has referred to prices and housing markets in some areas of the country as exhibiting “froth.” The bubble definition above is general enough, however, to be accepted by most analysts, suffices for the discussion here, and certainly encompasses the notion of frothy markets. Many theorists would deny that prices can ever be out of line with economic fundamentals for more than some temporary period when prices are adjusting to a new sustainable level. But as long as that sustainable or equilibrium level can change, it is possible, even likely, that observed prices hardly ever exactly hit their fundamental or equilibrium level and that prices simply gravitate toward these ever moving levels, sometimes overshooting their appropriate level. In that case, prices can get far out of line and will adjust to the underlying value determined by fundamental market forces. Such forces include interest rates, risk, expected price volatility, taxes, replacement cost, rates of return on alternative investment and a host of other factors.

The US house price index (HPI) has risen sharply over the past few years, whether adjusted for inflation or not (Chart 1). The HPI is prepared by the Office of Federal Housing Enterprise Oversight and is a “constant-quality” index because it is based on prices in repeat sales. Some analysts have questioned whether this measure really is a constant quality measure and prefer a series developed by the US Bureau of the Census, but the HPI is used here. The relative price index is constructed by Networks Financial Institute using the chain price index for personal consumption expenditure to deflate the nominal price measure (HPI). It measures house price movements relative to consumer prices in general. After showing little variation or trend for many years, the relative price measure has risen steadily since the end of 1995 and is about 64 percent higher than its 1980 or 1995 level.

Chart 1
House prices have risen very rapidly since the mid-1990s

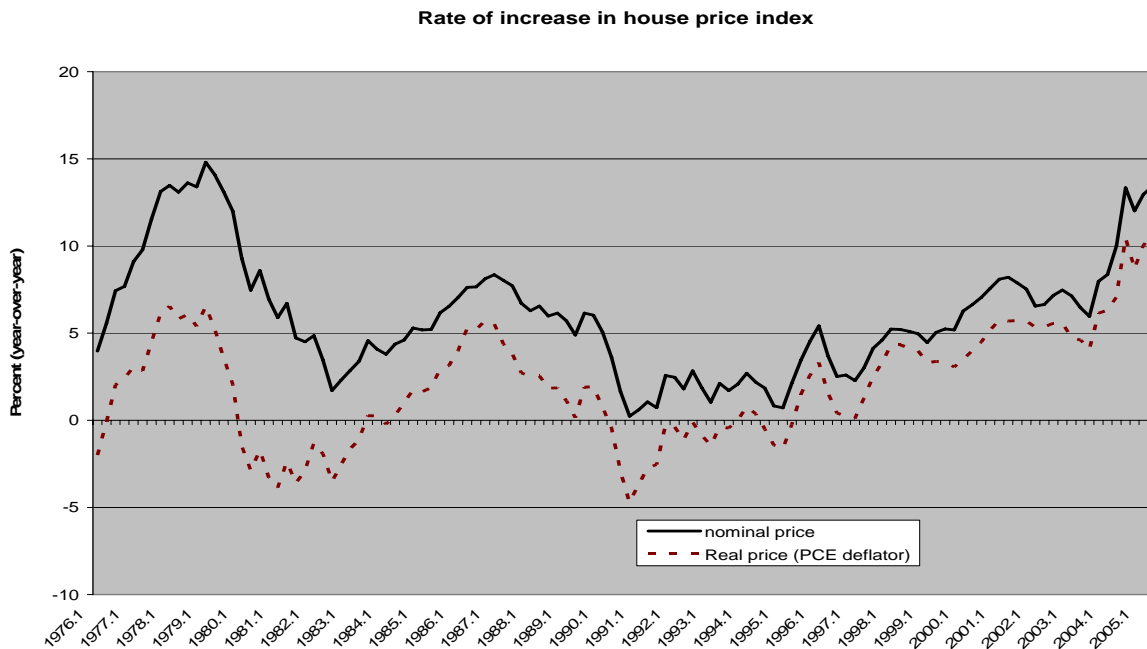


Source: Office of Federal Housing Enterprise Oversight (OFHEO) and Bureau of Economic Analysis

The rate of increase in the house price index and the increase in the relative price index for annual periods show the unusual rise in recent years. Chart 2 illustrates several other key facts about house prices. First, the HPI chart suggests that it would be very for nominal house prices to fall nationally, at least so long as all other prices are rising. The rate of nominal price (HPI) increase for the nation has not fallen below zero in the history of this series, dating back to 1974, though such a decline is not at all unusual in some cities during some periods. Second, at the national level, it is the case that house prices sometimes do not

keep pace with inflation. The relative price series shows that house prices fell relative to other prices for two long periods of time, first, a 9.1 percent fall from mid-1979 to II/1983, a period dominated by recession, and second from the end of 1989 to the beginning of 1995 when, with slight temporary interruptions, house prices fell 7.1 percent relative to consumer prices.

Chart 2
The rate of increase in house prices recently hit an historic new high in real terms



Source: Based on data in Chart 1

There could be reasons for the steady and large increase in the HPI since 1995, but many analysts suspect that prices are out of line with fundamental value and they also believe that there is a large risk that prices will fall in the near future. Some of the most outspoken proponents of the bubble view are Robert Schiller, Edward Leamer and Marco Van Akkeren of the PMI Group.

Different analysts use different methods [see Hagerty (2005), for example; all references are at the end of this article]. Some point to house price increases that are excessive relative to income, though there is no reason, in principle at least, for any asset's price to move in line with income. Schiller (2005) recently updated his best selling book to add a discussion of the housing bubble; he focuses on movements in the relative price of housing above a long-term average as an indicator of a bubble. In an earlier paper, he and Karl case (2003) provide some evidence that house prices were out of line with economic fundamentals in some states (8) in 2000-02. Their economic fundamentals include per capita income, population growth, employment growth, the mortgage rate, unemployment rate and housing

starts. Van Akkeren (2005) emphasizes the risk of price declines based on factors such as past price growth, price acceleration, local income, unemployment rates and housing affordability. He constructs an index of the probability of a house price decline over the next two years. In summer 2005, he estimated that the risk of decline was 21.3 percent for the nation's 50 largest markets and that six cities had a risk of decline greater than 50 percent. Leamer (2002) looks at a sort of price-earnings ratio comparable to equities, where "earnings" are replaced by the rental equivalent value of housing services; the price of a house, like an equity, should equal the present value of the future income or services yielded by the house and the rental value is the markets estimate of the annual value of those services. Prices in many markets and overall are at historical high levels relative to housing rent, suggesting that prices must fall back in line with a more normal price-earnings ratio.

Based on diverse methods, they, and others, conclude that US house prices are far too high and at least in the latter case, the risk of a "large" price decline over the next two years is quite high. The case for a bubble is even stronger when one focuses on local markets. For example, OFHEO reports their house price index for 379 standard metropolitan areas (SMAs). All but three of the top twenty cities for house price increases are in California. Table 1 shows the top five relative price indexes, which indicate increases far above the 20 percent inflation, from the beginning of 1995 to the second quarter of 2005. These prices were 240 percent higher than in early 1995. The top three non-California cities were in Massachusetts, New York and New Jersey. The top twenty SMAs had house prices that were up more than four times as much as in the median city, Austin Texas, where the median increase was 34.4 percent, again over and above inflation. House prices in Indianapolis rose about 19.7 percent more than inflation and the 5 SMAs at the bottom showed relative price increases of 5.5 to 8.6 percent over and above inflation. At least for these 379 SMAs, the house price index rose more than inflation in all of them. If there is a bubble or bubbles in selected markets the magnitude of the real price index suggests how large it might be. Of course that depends on the assumption that the relative price in early 1995 was the normal or equilibrium level toward which the price in each market can be expected to return.

Table 1
Rank and relative price index of housing in selected Standard Metropolitan Areas in II/2005

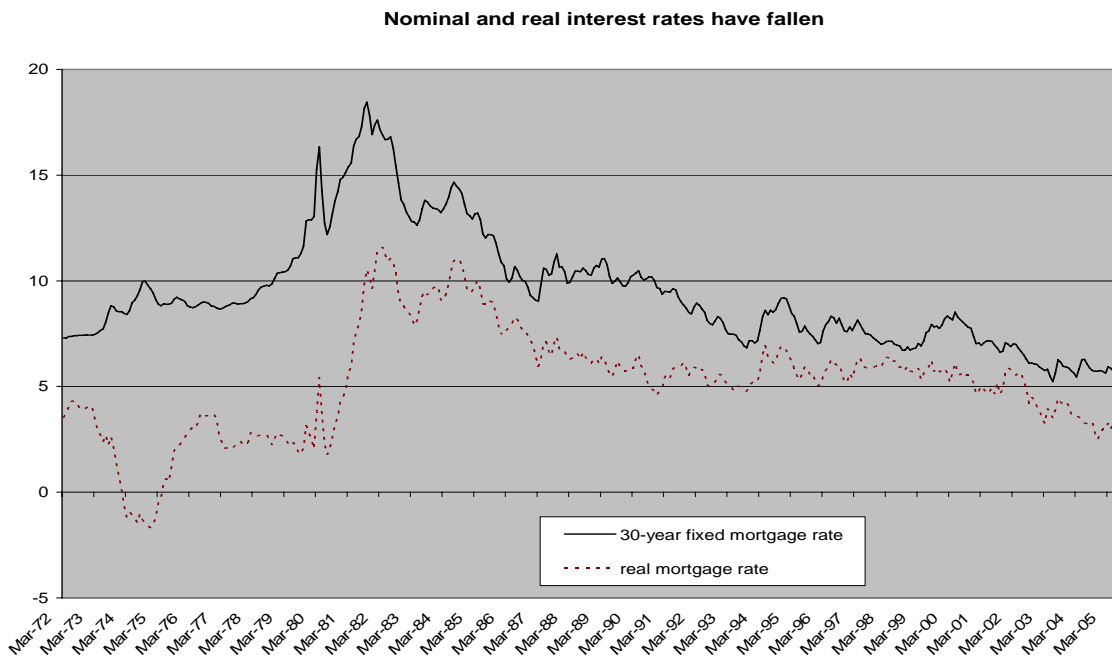
(I/1995 equals 100)

1	Santa Barbara, CA	263.3	190	Champaign-Urbana, IL	134.4
2	Salinas, CA	251.3	319	Indianapolis, IN	119.7
3	San Diego, CA	250.9	375	Rochester, NY	108.6
4	Barnstable Town, MA	246.4	376	Fayetteville, NC	108.2
5	Ocean City, NJ	241.4	377	Lafayette, NC	106.5
20	Nassau-Suffolk, NY	222.4	378	Florence, AL	106.5
			379	Springfield, IL	105.5

Source: Office of Federal Housing Enterprise Oversight and Networks Financial Institute

There are several reasons for house prices to have risen sharply in recent years, though these reasons cannot account for the disparity of differences shown in Table 1. One important factor is inflation. Another is the trend in interest rates. Chart 3 shows the monthly national average 30-year mortgage rate reported by the Federal Reserve (nominal rate) as well as an estimate of the real interest rate, the observed nominal rate with expected inflation removed, where the expected inflation rate is estimated by the rate of inflation of consumer prices over the previous 12 months. By either measure, the cost of financing a home has fallen sharply over the past 25 years, and especially in the past 5 years. The real interest rate estimate is the lowest on record. When interest rates are low, home owners are willing to pay much higher prices for the future services of the same house.

Chart 3
Interest rates have fallen to relatively low levels



Source: Federal Reserve Bank of St. Louis (FRED) and Bureau of Economic Analysis

Table 2 shows an accounting of the contribution of inflation and interest rates to the rise in the median price house from 2000 to II/2005. Recently the median price house was \$208,500 up 50 percent from 2000 when the price was \$139,000. With a 10% down payment and a 30 year fixed rate mortgage of 8.063 percent (the average for 2000, according to Federal Reserve data), the monthly principal and interest payment would be \$923.44. Prices rose by 10.8 percent over the next five years, which would boost prices and the monthly payment for the median priced house in 2000 by 2005. But lower interest rates by 2005 would have raised the amount of borrowing allowed for the same house payment.

Indeed, if the overall price of the house rose to \$190,734 by 2005 and the down payment was marked up only for inflation over the period, the resulting loan would cost the same as the house payment if only inflation had occurred and there had been no decline in interest rates.

Table 2
The rise in the median-priced house: 2000 to II/2005
(Actual rise from \$139,000 to \$208,500)

	2000	inflation effect	interest rate effect
Price	\$139000	\$154016	\$190734
10% down	\$13900	\$15402	\$15402
Loan	\$125100	\$138614	\$175332
30-year			
Fixed rate	8.063%	8.063%	5.75%
Payment	\$923.44	\$1023.19	\$1023.19
Actual price rise:	50.0%	Actual relative price rise:	35.4%
Due to inflation:	10.8%	Due to rate decline:	23.8%
Due to rate decline:	23.8%	Unexplained*:	9.3%
Inflation & rates:	37.2%		
Unexplained*:	9.3%		

*Factors are multiplicative and exactly account for the total

According to Table 2, about three-quarters of the 50 percent rise in the median price house over the period could be explained by inflation and interest rate reductions. Only 9.3 percent of the total price rise was unexplained by these two factors. The improvement in the quality of the median priced home could account for most of the rest of the increase. Looking only at the 35.4 percent relative price increase over the period, about two-thirds of it was explained by the decline in interest rates.

A recent article on condo prices pointed to demographic changes as a possible source for a doubling of condo prices between 1999 and 2005. The average condo price in many cities is now higher than the median price of much larger single family homes in the same cities. Shifting demographics may account for the relative difference in price performance as baby-boomers become empty nesters and turn to smaller, more luxurious units in more convenient locations in central cities and/or in resort areas. This may account for relative price shifts, but it does not explain the price performance of housing in general. Demographics or other factors could also play a role in some cities, but the increases in prices on the coasts in many cities are well beyond the national increase, suggesting that prices in some places, at least, are out of line with economic and other fundamental influences. Finally many analysts have

pointed to fears that mortgage interest rates are set to rise as a factor accelerating home purchases and driving up prices recently. But interest rate forecasts have been projected to rise for several years without sparking the size of recent price increases and home buying. Of course with mortgage interest rates at the lowest levels on record, taking advantage of the situation may have become especially significant for the timing of purchase decisions.

One of the leading critiques of the bubble story has been that by Jonathan McCarthy and Steven Peach (2005). They show that when a constant quality house price index prepared by the Census Department is used to compute the ratio of house rent to price, a measure Leamer suggests, there is no evidence of a bubble. Macroeconomic Advisers (2004) also argue that there is no evidence of a bubble based on a model that incorporates the user cost of capital, past real disposable income, numbers of households in the population and the existing housing stock.

Do Bubbles Pop or Deflate?

It would make a major difference if there is a real estate bubble and it popped or if it gradually deflated. Even if there is no bubble, a major decline in price realized gradually over many years would allow time to adjust with minimal influence compared with the situation when prices decline abruptly. Most analysts believe that house prices, if they are to adjust downward, will fall gradually, and only relative to inflation, instead of suddenly collapsing. A slow decline in the relative price, but not the dollar price, is the pattern observed in the early 1980s and early 1990s. Of course, in the markets on both coasts where dollar prices were most excessive in each period, dollar prices did fall over an extended period of time.

The International Monetary Fund (2003) examined asset price bubbles across many countries from the late 1950s to 2003. For house price booms and busts, there was data on 19 countries from 1970 through the third quarter of 2002. A house price bust was taken to be a 14 percent decline (compared with a 37 percent decline for equities). Booms and busts were measured for the top quartile and bottom quartile of peak-to-peak and peak-to-trough relative price movements, respectively. The study found that house price busts occurred in 20 periods for the 14 countries, suggesting a frequency of one bust every 20 years. The average bust was a decline of 30 percent, lasted about 1.5 years, longer than equity price declines, and busts were more likely to follow booms (40 percent probability) for housing prices than for equities. Housing busts were relatively synchronized across countries and occurred around recessions, especially in 1980-82 and in 1989-92. There is widespread agreement that if house prices decline, it will be associated with a recession, but what is not clear is whether a house price decline triggers a recession or a recession triggers the house price decline. At least some proponents of the house price bubble view think that an end to the bubble is likely and that it will trigger problems in the financial sector, as well as reduced consumer spending and housing construction, all factors that will culminate in recession and unemployment and further increases in bankruptcy.

Van Akkeren (2005) has looked more closely at booms and busts in house prices in 379 US SMAs from 1978 to 2004. He shows that 89 SMAs had a boom or bust during the period.

Most busts did not follow booms and most booms were not followed by busts. The busts were generally clustered in California, the oil states, and New England. Some busts did follow booms, but only after long delays. Indeed, the delays were so long as to raise serious doubts about the causal connection between booms and busts. Busts in California (four SMAs including Los Angeles, Oxnard, Riverside and San Luis Obispo) occurred in 1994-98 and followed booms that had ended four years earlier. Busts in New England occurred in three SMAs in Connecticut and New Hampshire and followed by three to four years booms in the same areas. Busts in the oil patch came in 1985-92, depending on the SMA, and did not follow booms, though the data do not begin until the early 1980s in several of these SMAs.

Another study, by Cynthia Angel and Norman Williams (February 2005) at the Federal Deposit Insurance Corporation find that the probability of a bust following a boom is only 17 percent. A boom was defined as a rise of 30 percent or more over three years in the relative price of housing and a bust was defined as a 15 percent decline over five years in the nominal price of housing. From 1978 to 2003, there were booms in 63 cities and busts in 21 cities, but only nine of the busts followed booms. In an update (“FYI: An Update on Emerging Issues in Banking,” May 2005), they point out that the number of boom cities in 2004 hit 55, approaching the total number over the previous 25 years! Angel and Norman also point out that nominal price declines are not likely, nor are large, rapid declines likely in the event of a real price decline, at least based on past experience.

Asset price declines and financial institutions

If house prices decline, borrowers will become less wealthy and also more likely to default on mortgage loans. In addition, the collateral on mortgage loans will fall in value, subjecting financial institutions to greater potential losses. If losses of financial institutions exceed their capital, then they become insolvent and are closed. Also as financial institutions take losses on mortgage loans and write down their capital, they will be less able to make new loans of any type. In the past two decades, banks and credit unions have substantially increased their exposure to mortgage loans, so that a given decline in the value of existing loans will be more likely to result in failure. Over the same period, government-sponsored enterprises (GSEs), mainly Fannie Mae and Freddie Mac, have ballooned exposure to real estate and mortgage loans, and leveraged up even more the private sector exposure by issuing and guaranteeing mortgage-backed securities. Total exposure to real estate –related assets has risen from about 92.7 percent of GDP at the end of 1995 to \$16,779.5 billion, or 143.8 percent of GDP at the end of 2004.

Table 3 shows the mortgage loan exposure of various financial institutions. It is quite large relative to the total assets of the same institutions (shown in parentheses) so that a large decline in house prices could raise defaults enough to trigger failures of institutions and further constrict credit supplies. For example, banks now hold more than 30 percent of their total assets in mortgage loans and capital equals only about 8 percent of assets. A write-off of about 27 percent of mortgage loans would wipe out an amount equal to the total capital of the banking industry, eliminating many banks and sharply limiting the ability of banks to

carry existing loans, not to mention curtailing their ability to extend new loans. That in turn, could further trigger reduced demand for goods and services, recession and reduced employment. Such a development would be most unlikely, not only because such a decline in value of mortgages is extremely remote, but more importantly because bank risk management practices limit the losses banks can experience from default or loss in asset values by shifting it to other investors through derivatives transactions.

Table 3

Financial Institutions are heavily exposed to the real estate sector (IV/2004)				
(Billions of dollars; amounts outstanding end of period, not seasonally adjusted)				
Sector	Total mortgages (% of sector assets)	Home mortgages (% of sector assets)	Agency & GSE- backed securities (% of sector assets)	Exposure to real- estate related assets (% of sector assets)
Commercial banks	2,595.3 (30.6%)	1,568.0 (18.5%)	1,096.4 (12.9%)	3,691.7 (43.5%)
Savings institutions	1,058.5 (62.6%)	875.9 (51.8%)	223.8 (13.2%)	1,282.3 (75.8%)
Credit unions	213.2 (32.6%)	213.2 (32.6%)	117.0 (17.9%)	330.2 (50.4%)
GSE	474.0 (16.5%)	366.8 (12.7%)	1,126.7 (39.1%)	1,600.7 (55.6%)
Other	6,192.0 (NA)	5,072.5 (NA)	3,682.6 (NA)	9,874.6 (NA)
Total	10,533.0	8,096.4	6,246.5	16,779.5

Source: Flow of Funds Accounts - Federal Reserve Board of Governors

Another factor that would limit the damage from a housing sector meltdown is that we hold houses primarily for the housing services they provide and those services do not depend on the price of the house. Thus, a large fall in the value of housing would reduce household assets, but it would not force the realization of those losses right away nor would the standard of living of those who plan to stay in their houses be affected. Those who had planned to liquidate part of their housing wealth in exchange for other assets, goods or services would be adversely affected because part of that housing wealth, and hence their ability to trade for other assets, would be eliminated. In the case of an equity market meltdown the situation is quite different. As the equity price falls in value, it reflects a corresponding decline in the future income that is expected to accrue to the owners of the stock. This is not likely to be the case with a house because “what you see is what you get,” i.e. the services of the house are not likely to be erroneously estimated. Put another way, a stock is not held for the consumption services it yields, but a house usually is.

Housing and the economy

Even without reduced credit availability, spending could be constrained by reduced consumer spending and/or by reduced residential investment or construction. The first channel is based on what economists call the wealth effect. When house prices fall, households’ wealth is reduced. In order to rebuild wealth, households will lower consumer spending and boost saving. Lower spending will lead business to cut back employment and

production, inducing further declines in output, employment and income. The second channel, reduced house construction, occurs because the house price decline reduces incentives to build new houses. A decline in residential investment spending could trigger a recession as well.

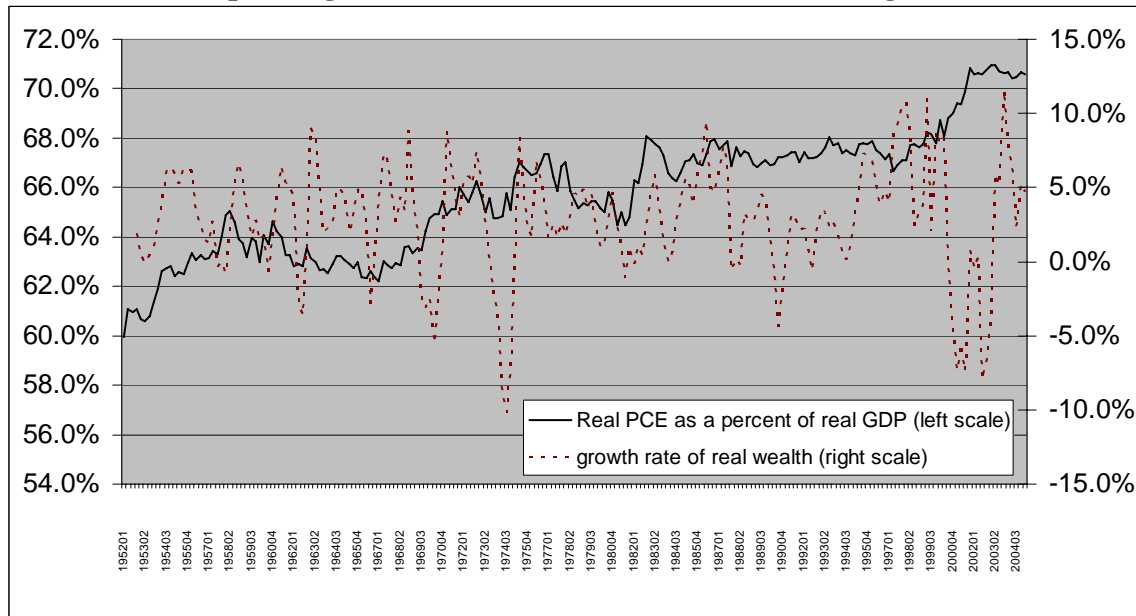
The wealth effect

The wealth effect became more popular in the late-1990s when stock prices, especially tech-stocks, boomed and then plummeted in 2000 and 2001. The fear then was that investors would eventually question the value of the assets they were accumulating, stop buying and end the upward boom in prices, turning it into a declining trend. The consequent wealth decline would trigger reduced spending, both because some spending had been dependent for financing on the rising equity prices and because households would boost saving to replace lost wealth. In the past few years the emphasis on house prices as the source of such an end of boom and crash have become more popular.

The presence and strength of the wealth effect has been controversial for many years. Economic theory indicates that household's permanent or long-term estimates of income and real rates of return on capital fully capture the influence of wealth on consumer spending so there is no independent wealth effect. There could be a compositional effect of wealth, however, and it indicates that a given level of wealth and income will boost consumer spending or lower saving more, the more liquid, or tradable, is wealth. Thus equity has a greater effect on consumption than houses, which in turn have more liquidity than human capital or wealth from future labor income. Yet some studies find evidence that there is a wealth effect of housing wealth and it is slightly larger than a wealth effect for equities. This puzzling result is part of a growing controversy over wealth effects, though in any event, wealth effect estimates, when they are not zero, are too small to have recessionary implications, at least for a range of unusually large, but possible, asset price declines.

Some insight into the potential for wealth effects can be seen in Chart 4 where one can see that real consumption expenditures as a percent of real GDP did not rise unusually in 1995-2000 when equity prices rose relatively rapidly, boosting wealth growth, nor did real consumption decline relative to real GDP when wealth growth fell in 2000-2002. Some analysts have argued that the negative effects of equity wealth declines on consumer expenditures did not materialize because they were offset by the boom in housing wealth. However, as the growth rate of wealth in the chart shows, wealth growth remained relatively slow when consumer spending did rise sharply from mid-2000 to the end of 2001 and then, when wealth growth did pick up after mid-2003, consumer spending stopped accelerating relative to real GDP. Whether a house price collapse would slow consumer spending looks doubtful, at least based on movements in wealth and consumer spending in the past decade or on earlier changes in wealth and consumption in the early 1980s and early 1990s when relative house prices fell, but consumption spending did not fall relative to real GDP.

Chart 4
Real consumer spending has not mirrored movements in wealth growth



Source: Bureau of Economic Analysis and Board of Governors of the Federal Reserve System

Could reduced housing demand cause a recession?

At a pure accounting level, a decline in new housing construction consequent to a house price decline could reduce overall demand enough so that total spending and output could fall. But that is purely a conceptual experiment that ignores the relative unimportance of home building in the US economy and ignores the sources of actual recessions. Home building is measured as real residential investment in the National Income and Product accounts, the accounting framework for measuring GDP. The share of real residential investment in real GDP is volatile, though its volatility was far higher until the 1980s and has declined since then. The share is also small, averaging 4.6 percent for more than 20 years. Even with the recent boom in house prices, sales and new construction, real investment remains relatively small, 5.4 percent of GDP in the second quarter of 2005. Even a large drop in such spending, say 50 percent would not be large enough by itself to put GDP growth in negative territory, so long as recent growth rates of over 3.4 percent per year would otherwise occur.

The usual proximate source of recession is a decline in business fixed investment in plant, equipment and software. For example, for the average of the past 10 recessions (since World War II), real GDP declined from the cycle peak to the trough by 1.7 percentage points. That is exactly the size of the decline contributed by the fall in business fixed investment over the same period. In the case of housing, residential investment typically fell before the recession and began to recover on average one quarter after the business cycle peak, and never declined for more than one quarter following a peak. The average

recession, in contrast, lasted 3 quarters and in the two worst recessions lasted for 5 quarters. Recall that earlier it was pointed out that the relative housing prices continued to decline for several years after the early 1980 and 1990 recessions, so declining house prices were not sufficient to keep the economy from recovering in each case.

Conclusion

Concern that booming house prices might end and that prices could even crash has heightened in recent years as price increases continue to set new records. Fears have been mounting that the robust economic expansion could end in a downward spiral into recession and rising unemployment because of a house price crash. The data presented here provide some perspective on the rise in house prices since the mid-1990s. The relative price of housing is rising faster than at any time in its limited historical record and is at about a level far above that registered before the mid-1990s. Financial economists have suggested that the relative price of housing should be stable or have no upward or downward trend, reverting to a long-term mean level instead. If this is correct, then housing prices are set to decline. How fast and how far they will decline is open to question, just as is the premise that prices have any reason to fall at all. But past experience for the US suggests that house prices are not likely to fall at all. If anything, they will fall relative to prices in general so that house prices would not keep pace with inflation for many years. There are many reasons why house prices have been going up so fast in recent years. In particular, since 2000, inflation and falling real nominal and real interest rates account for most of the rise in nominal house prices. Changing demographics may also be boosting house prices.

Bubble proponents typically point to three main channels of influence that could turn falling house prices into economic crises or at least recessions. The first is weakening the balance sheets of financial institutions, which have become more heavily exposed to mortgage debt than at any time on record. Falling house prices could lead to defaults on mortgage loans, depleting capital of financial institutions, threatening their continued existence or at least their ability to fund new existing or existing mortgage or other loans. This in turn could impair spending. Housing losses are not like losses on tech stocks however. When house prices fall, households can avoid selling and taking the loss simply by living in their houses. Unlike tech stocks, in such instances, the house will continue to generate the same income or housing services as it did before. So, if house prices decline, major losses to financial institutions are not as likely as it might seem. Besides, financial institutions have become very adept at managing risk, indeed, that is one reason they have an increased appetite for mortgage and other credit exposure, since they now know how to diversify risk and insulate their capital from adverse asset price movements or default.

The second channel, lower consumer spending and overall demand in the economy, leading to reduced output and employment, rests on a questionable effect of wealth on consumer spending. For both theoretical and empirical reasons, it is unlikely that increases in wealth arising from stock or house price increases will boost consumer spending or that price declines will lower consumer spending. Certainly the record of the past ten years is not supportive and even estimates of such an effect that have been found are too small to explain much movement in spending and saving, at least for the size of price movements observed

in the past decade. Finally the third channel, that the housing sector could shrink if house prices fall, pushing overall demand down into recession, is questionable. The housing sector is too small to be able to do this today. Moreover, it has not been the case in over 50 years that housing is big enough or volatile enough, nor does the pattern of housing decline surrounding recessions fit the pattern of recessions. Recessions seem to be most closely and proximately related to business fixed investment and that is driven by comparisons of desired and actual capacity, not the housing market.

Home owners may take some solace from the results here—a crash is not inevitable or even likely. In fact housing prices have not risen unusually relative to prices in general, especially when the decline in real mortgage rates is taken into account. But all is not rosy, at least not if mortgage rates soon begin to rise, creating a long period of decline in the relative price of housing of the magnitude suggested here. Of course these interest rate projections could be wrong. In that case, relatively high house prices are here to stay. Good news for homeowners, but bad news for those who would like to get on the home ownership wagon, but have been priced out of the market.

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