



Will a Bursting Bubble Trouble Bernanke? The Evidence for a Housing Bubble

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Executive Summary

Economic policy-makers and analysts either missed or chose to ignore the growth of the stock bubble in the late 1990s. When the stock bubble finally burst, it threw the economy into a recession. It also destroyed much of the retirement savings of millions of workers, and it left many of the country's largest pension funds badly underfunded.

Alan Greenspan has consistently defended his decision not to attempt to address the stock bubble, arguing that it is not part of the Fed's mandate. However, he has been willing to interpret the Fed's mandate broadly on other occasions, such as intervening to support the stock market in 1987. He also interpreted the Fed's mandate as requiring him to intervene in the unraveling of the Long-Term Capital Hedge Fund in 1998.

Benjamin Bernanke, who was nominated by President Bush to succeed Alan Greenspan, seems determined to follow the same course. He has argued that there is no housing bubble, and therefore there is no reason for the Fed to take action to deal with a housing bubble. This policy raises grave risks, since the impact of a bursting housing bubble is likely to be even greater than the impact of the collapse of the stock bubble.

This paper notes three patterns that are difficult to explain, except as the outcome of an unsustainable run-up in house sale prices. It notes:

* **A sharp divergence between house sale prices and rents.** If house sale prices were pushed up by fundamentals in the housing market, it would be expected that rents and house sale prices would rise together. This divergence is quite visible in many local markets. When such divergences occurred in the past, they were usually followed by sharp declines in house sale prices.

* **An extraordinary rate of housing construction.** The pace of housing construction over the last 3 years

is more than 40 percent higher than the average construction rate in the 17 years prior to the run-up in house prices. This construction boom is occurring as population growth is slowing and the huge baby boom cohort is reaching ages at which the portion of income devoted to housing typically declines sharply. It is also worth noting that virtually no economists projected this surge in construction prior to its occurrence.

* **A sharp decline in the savings rate.** There is a wealth effect associated with housing wealth, which leads people to consume more and save less. The sharp run-up in house sale prices over the last 8 years has pushed the savings rate into negative territory, even as most baby boomers are in their peak savings years. If house prices continue to outpace inflation, then the savings rate will decline still further, leaving the vast majority of baby boomers with little wealth outside of their home.

These three trends strongly suggest that the run-up in housing prices is inconsistent with the fundamentals of the housing market, and is more likely attributable to a speculative bubble. The failure to address a speculative bubble increases through time. If the Fed chooses to let a housing bubble expand unchecked, the eventual cost to the economy and tens of millions of households could be enormous.

Introduction

In England, which also had an extraordinary run-up in housing prices, economic growth has slowed by between 1-2 percentage points, as house prices stopped rising.

The Federal Reserve Board's mandate requires it to pursue two goals: full employment, defined as 4 percent unemployment, and price stability. It has enormous leeway in determining what this mandate implies. For example, in 1998 Alan Greenspan determined that this mandate required the Fed to intervene in the unraveling of the Long-Term Capital Hedge Fund. In 1987, he interpreted the mandate as requiring him to intervene to support the stock market following an unprecedented one day plunge. By contrast, Greenspan did not believe that the mandate required him to act to stem a stock bubble that he first recognized in 1996. Instead, he allowed it to expand for four years before it eventually burst, throwing the economy into a recession and wiping out much of the retirement savings of tens of millions of workers.

As the stock bubble expanded in the late nineties, housing prices began an unprecedented run-up. The stock bubble burst in March of 2000, with prices falling back to more normal levels over the next two years. However, housing prices continued to rise, propelled by the lowest mortgage rates in fifty years. This raised the prospect of a housing bubble rising alongside the stock bubble, as happened in Japan in the eighties.

Alan Greenspan explicitly denied the existence of such a bubble, arguing in congressional testimony and other public pronouncements that the run-up in housing prices was driven by fundamentals. (Factors providing a fundamental basis for the a run-up in house prices would include: shortages of land; environmental restrictions on buildings; higher incomes and a growing population.) How-

ever, in the last year, Greenspan has taken a different attitude, warning explicitly of "frothiness" in some housing markets. By contrast, Bernard Bernanke, President Bush's nominee to succeed Mr. Greenspan, has explicitly asserted that there is no housing bubble. This raises the question of whether it is his intention to ignore the run-up in housing prices and to simply deal with the wreckage created by their reversal (if such a reversal occurs) — Greenspan's stated policy towards the stock bubble.

It is worth noting that the wreckage from such a reversal in housing prices is likely to be severe. In England, which also had an extraordinary run-up in housing prices, economic growth has slowed by between 1-2 percentage points, as house prices stopped rising. Personal bankruptcies have already soared to record levels. It remains to be seen what the effects on the economy and households' finances will be if there is a large-scale reversal in house prices.

This paper examines the evidence for the existence of a housing bubble. It points out that it is very difficult to explain this unprecedented run-up in housing prices by fundamentals of the housing market. It also points out some implausible implications of this price run-up being sustained.

The Housing Bubble: How We Know It's Real

In the last eight years, house sale prices have risen by 55 percent, after adjusting for inflation.¹ There is no precedent for this sort of run-up in home prices. In the past, home sale prices have on average just kept pace with inflation. This run-up in home prices has had a huge impact on the economy and people's personal finances. The housing sector has been the major engine of growth following the 2001 recession, as construction has risen by almost 40 percent since the recession and a surge in home equity borrowing sustained strong consumption growth.

Housing is also a major source of household wealth. The value of family owned housing is \$18.5 trillion, with more than \$6.5 trillion of this wealth attributable to extraordinary run-up in house prices of the last eight years.² For more than half of all households, their home is by far their largest single asset. While the run-up in home prices of the last eight years has led tens of millions of homeowners

to feel wealthier than they would be if home prices had just followed their normal path, if prices adjust back to more normal levels, these families will see much of their wealth disappear.

For these reasons, it is very important to know whether or not the recent run-up in house prices is due to fundamental factors, and therefore likely to be sustained, or whether it is a bubble that will be reversed once the bubble psychology driving the run-up in prices is reversed. On this issue, it is important to note that the track record of the economics profession and so-called financial experts has been abysmal. Very few economists recognized and warned of the stock bubble in the late nineties.³ The vast majority of economists and financial experts continued to recommend that investors, including large investors like pension funds, put their money in the stock market even as the bubble grew to ever more unsustainable levels.

It required nothing more than simple arithmetic to recognize the stock bubble. Once the price to earnings ratio in the market got far above its historic average (it peaked at 33, the historic average was 14.5), it was impossible to believe that the stock market could generate anywhere near its historic rates of return, unless one believed that economic growth would vastly exceed the

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¹ This discussion relies on the Office of Federal Housing Enterprise Oversight's House Price Index for its measure of home prices. This index measures the increase in the sale prices of the same homes through time. In other words, if a home is sold in 2005, it compares the 2005 sale price with the price at which the same house sold the prior time it was sold. This method prevents distortions in the index that could result from a change in a mix of the types of homes being sold. The period of the run-up in house prices is from the first quarter of 1997 through the second quarter of 2005, the most recent quarter for which data are available. The GDP deflator is used as the measure of inflator throughout the paper.

² The value of residential real estate is taken from the Federal Reserve, Flow of Funds Accounts, Balance Sheet Table B.100 Line 4. The calculation of bubble wealth takes the difference between the current value, and the value if house prices had just moved in step with the GDP deflator since 1997.

³ Federal Reserve Board Chairman Alan Greenspan recognized the stock bubble, but opted not to warn about the bubble and the predictable consequences of its collapse.

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widely accepted range.⁴ The fact that so many “experts” managed to completely miss something that could have been detected as easily as the stock bubble should be kept in mind when assessing views on the housing market.

⁴ This logic is explained in more detail in “[Stock Returns for Dummies](#),” Baker, D. 2001, Center for Economic and Policy Research.

Environmental restrictions on building have been in place since at least the sixties, and there is no reason to believe that they became tighter in the late nineties, a period in which conservatives came to dominate all levels of government.

The Non-Bubble Case – What Are the Fundamentals?

If the housing market is not experiencing a bubble then the run-up in prices since 1997 must be explained by fundamentals. In other words, there must have been some fundamental factor that began to affect supply and/or demand for housing in 1997 (coincidentally at the same time the stock bubble took off) that had not previously been present in the market. This issue is dealt with at somewhat greater length in an earlier paper,⁵ but the standard arguments can be described quickly here.

The factors that have been listed as providing the fundamental basis for the recent run-up in house prices are:

- 1) shortages of land;
- 2) environmental restrictions on buildings;
- 3) growing incomes;
- 4) growing population.

It is easy to show that none of these factors provide a plausible basis for a run-up in prices in the late nineties.

Taking these factors in turn, there is no obvious reason why the limited supply of land should suddenly have started to push up house prices in 1997, when it never had previously led to real increases in housing prices for the country as a whole. (Some markets have experienced large increases in housing prices, but these were offset by declines in housing prices elsewhere.) In fact, the opportunities for telecommuting offered by the Internet should have decreased the

premium associated with being located in a specific place.

Environmental restrictions on building have been in place since at least the 1960s, and there is no reason to believe that they became tighter in the late nineties, a period in which conservatives came to dominate all levels of government. The fact that homebuilding has been carried on at a near record pace for the last three years indicates that these restrictions have not presented too large an obstacle on a national basis.

While incomes have grown in the last seven years, apart from periods of stagnation in the eighties and early nineties, they have grown throughout the post-war period. In fact, income growth was often far more rapid than what we have experienced in the past eight years, yet it never led to a comparable run-up in home prices. The same is true for population growth. With most baby boomers preparing for retirement and looking for smaller homes, demographics would suggest a relatively slow rate of growth in demand – certainly much slower than the growth rate in the seventies and eighties when the huge baby boom cohort was first forming its own households.

In short, there is no explanation based in fundamentals that supports the recent run-up in home prices. None of the factors proposed by opponents of the bubble view are new to the late 1990s. In most cases, these factors should have been more pressing as supply constraints or spurs to demand in prior decades.

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⁵ Baker, D. 2002 “[The Run-Up in Home Prices, Is It Real or Is It Another Bubble?](#),” Center for Economic and Policy Research.

If low interest rates are the main factor explaining high house prices, then the implication is that when interest rates rise back to more normal levels (as virtually all economists expect) then house prices will plummet back to their trend growth path.

There is one other influence that is often suggested as a fundamental factor that could drive up house prices: low interest rates. In effect, if people only care about the monthly mortgage payment, then a low interest rate can push up house prices, just like it pushes up bond prices. However, rather than contradicting a bubble view, the low interest argument actually supports it. If low interest rates are the main factor explaining high house prices, then the implication is that when interest rates rise back to more normal levels (as virtually all economists expect) then house prices will plummet back to their trend growth path.⁶

In effect, this argument implies that house prices have entered a new era of unprecedented volatility. People who buy homes when interest rates are very low, risk huge losses if interest rates later rise. On the other hand, those who buy when interest rates are very high may experience large gains if interest rates subsequently decline. House prices have not historically been that sensitive to interest rates, but if in fact low interest rates explain the recent run-up in house prices, then the country has entered a new era in which house prices fluctuate hugely over the course of a business cycle. This perspective on the housing market is consistent with the bubble view and implies that homeownership in the future will be a far more risky proposition than it has been in the past.

⁶ For example, the Congressional Budget Office projects that the interest rate on the ten-year Treasury bond will rise to 5.4 percent by 2007. It had been as low as 3.9 percent in the summer.

The Evidence for a Housing Bubble

In addition to presenting a sharp departure from prior history, there are other reasons for believing that the recent run-up in house prices is a bubble and not driven by fundamentals. This paper will examine three of these reasons:

- 1) There is a sharp divergence between rental prices and house sale prices – if the run-up is attributable to fundamental factors of supply and demand in the housing market, then it should be affecting ownership prices and rental prices in approximately the same way;
- 2) The United States is building housing units at a near record pace, even though its population growth is slowing sharply and baby boomers are reaching ages at which they could be expected to consume less housing;
- 3) If sustained, the run-up in house prices, coupled with the current building rate, imply that the savings rate will be driven even further into negative territory, leaving the country with a massive build-up of debt.

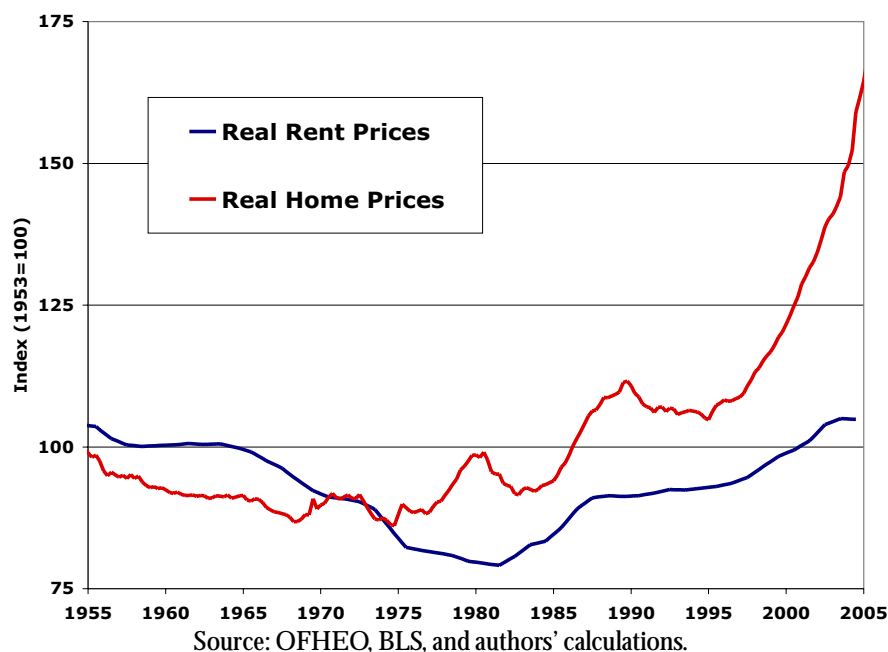
Each of these sets of facts strongly suggests that fundamentals cannot explain the run-up in housing prices. They imply an implausible future, if house prices remain near their current level.

The Divergence in House Sale Prices and Rents

While house sale prices and rents have occasionally drifted apart for periods of time, the difference in their rates of inflation from 1955 to 1995 averaged less than 0.42 percentage points.⁷ The divergence in these two series since 1997 is unprecedented. The House Price Index (HPI) has increased by 51 percentage points more than the rent index over the last eight years as shown in Figure 1.

⁷ The ownership price data use the home purchase component of the consumer price index (CPI) prior to 1975, an average of the inflation rate in the home purchase component and the House Price Index from 1975 until 1982, when the home purchase series was discontinued, and the Home Price Index for years after 1982. The rental index is the CPI rent index. The CPI rent index includes some utilities, which complicates the comparison during periods of rapidly rising or falling energy prices.

Figure 1: Rent vs. Home Prices



This divergence is also readily visible in the metropolitan area housing price data, as all the areas that have experienced large increases in house prices have also seen large divergences between house sale prices and rents. While it is reasonable to expect that rents and house sale prices would not rise at exactly the same pace if there were fundamental factors pushing up prices, rents should continue to rise until they have come close to catching up with house sale prices. This has not happened in the areas with rapid house price increase. In most, the pace of rental inflation has slowed in recent years, and in some of these markets rents have actually been falling in real terms in the last year. For example, in the last year, real rents have fallen by 2.3 percent, 1.7 percent,

and 0.9 percent in San Francisco, Boston, and Seattle, respectively.⁸

There have been periods in the past in which local markets have seen large divergences between house sale prices and rents. In almost every case these divergences were followed by a sharp fall in house sale prices. Table 1 shows the 20 largest gaps in inflation rates over any 8-year period between house sale prices and rents for the years and metropolitan areas in which data is available. It also indicates any subsequent decline in real house sale prices.

⁸ These figures use the CPI owners equivalent rent series. This series is better for comparison with sale prices, since it excludes utilities, however, it is not available prior to 1982.

Table 1

**Largest Gaps Between Increases in Home Sale Prices
and Rent**

(Percentage Point Differences)

City and Start of Period	Run-up in Home Prices Over Rents (33 Quarters)	Eventual Change in Real Home Prices From End of Period
New York 1978-IV	69%	-22%
Boston 1978-II	64	-24
San Diego 1997-I	62	
Los Angeles 1997-I	62	
Honolulu 1982-IV	59	-32
Miami 1997-I	58	
San Francisco 1997-I	57	
Boston 1997-I	51	
Washington, DC 1997-I	50	
Tampa 1997-I	50	
New York 1997-I	50	
Honolulu 1997-I	48	
Minneapolis 1997-I	45	
Phoenix 1997-I	44	
Seattle 1997-I	43	
San Francisco 1982-I	38	-23
Seattle 1982-III	38	-1
Philadelphia 1997-I	37	
Portland 1987-III	35	48
Portland 1997-I	33	

Source: OFHEO, BLS, and authors' calculations.

As can be seen, of the 20 largest percentage points gaps between the run-up in house sale prices and rental prices, 14 have occurred in the last 8 years. In the 4 of the 6 cases on this list where there was a large gap in the years prior to 1997, there was a large subsequent decline in real house prices. In the case of Boston home prices fell by 24%. In the case of New York, prices fell by 22 percent. On the other hand, prices in Portland continued to rise. However, the initial eight-year run-up in prices in Portland ends in 1995, just as the nationwide boom in housing prices begins. Seattle is the only city on this list where there was a large gap developing between house sale prices and rents, prior to the current run-up, where there was not a subsequent plunge in house sale prices.

The evidence in Table 1 suggests that large gaps between the rate of increase in house sale prices and rents were relatively rare, prior to the post 1997 run-up. Furthermore, in most of the cases where such gaps arose in the past, they were followed by sharp declines in real house sale prices. This evidence is consistent with the view that the sharp run-up in house sale prices in many metropolitan areas over the last 8 years is likely to be reversed at some point in the future.

There is one final point worth noting about the sharp rise in house sale prices in certain metropolitan areas. It is undoubtedly true that many people view some of these metropolitan areas as very desirable places to live, and therefore are willing to pay a premium to live in a metropolitan area like New York or San Francisco compared to

other areas of the country. However, if these run-ups in house prices reflect fundamentals, then it should be assumed that rents will eventually adjust and these areas will then have a permanently higher cost of living. This higher cost of living will be reflected not only in higher rents, but also in higher prices for all the services in the area, since restaurants, stores, and other businesses that provide services will have to pay workers higher wages in order to compensate for the higher rents. No one will work for \$5.25 an hour in an area where the cheapest available rent is \$500 or \$600 per month. (The rental components of the CPI account for approximately 30 percent of the whole index, which means that as a national average, rent accounts for approximately 30 percent of household consumption.).

In effect, housing prices can be viewed as analogous to a tax. Certainly cities like San Francisco and New York could impose special taxes and still have many people who would be happy to live there, however if the taxes become high enough, people will opt to live elsewhere, in spite of the attractions of these cities. The exact same logic applies with housing prices. If high housing prices in a metropolitan area mean that people at even good-paying jobs will never be able to save enough to pay for their children's college or their own retirement, then it is unlikely that many people will opt to live there.

Anyone who believes that current house prices in some of the areas with the sharpest recent run-ups are driven by fundamentals, must believe that the families in these areas can afford homes that in may be three or four times as expensive as comparable homes

While it is reasonable to expect that rents and house sale prices would not rise at exactly the same pace if there were fundamental factors pushing up prices, rents should continue to rise until they have come close to catching up with house sale prices.

If high housing prices in a metropolitan area mean that people at even good-paying jobs will never be able to save enough to pay for their children's college or their own retirement, then it is unlikely that many people will opt to live there.

elsewhere. While families may view these homes as affordable, if real house prices continue to rise, this is a description of a bubble market not one driven by fundamentals.

Housing Construction Rates

The run-up in real housing prices has led to near record rates of housing construction. At the current rate of housing construction, there will be 2 million units built in 2005, an amount exceeded only by the 2.4 million annual rate in 1972.⁹ Housing construction will continue at roughly the current pace (or expand further), unless prices fall to reduce the profit of building in the current market. If housing construction continues at this rate, then it will vastly exceed the average rate of construction prior to the recent run-up of prices. It will also exceed the rate of household formation, leading to a rise in the ratio of housing units to households.

The average annual rate of housing construction from 1980 through 1996 was 1.4 million units. The current rate of construction is a full 43 percent higher than the rate of construction over this 17-year period. It is worth noting that virtually no economists argued that there was serious pent-up demand nationwide or a housing shortage due to a lack of construction during this long period. The sharp increase in housing construction was almost completely unexpected. Most of the economists who

⁹ It is worth noting that housing construction has historically been subject to very large cyclical fluctuations. In 1970 there were 1.4 million housing starts. Housing starts fell back to 1.3 million in 1974 and bottomed out at less than 1.2 million in 1975.

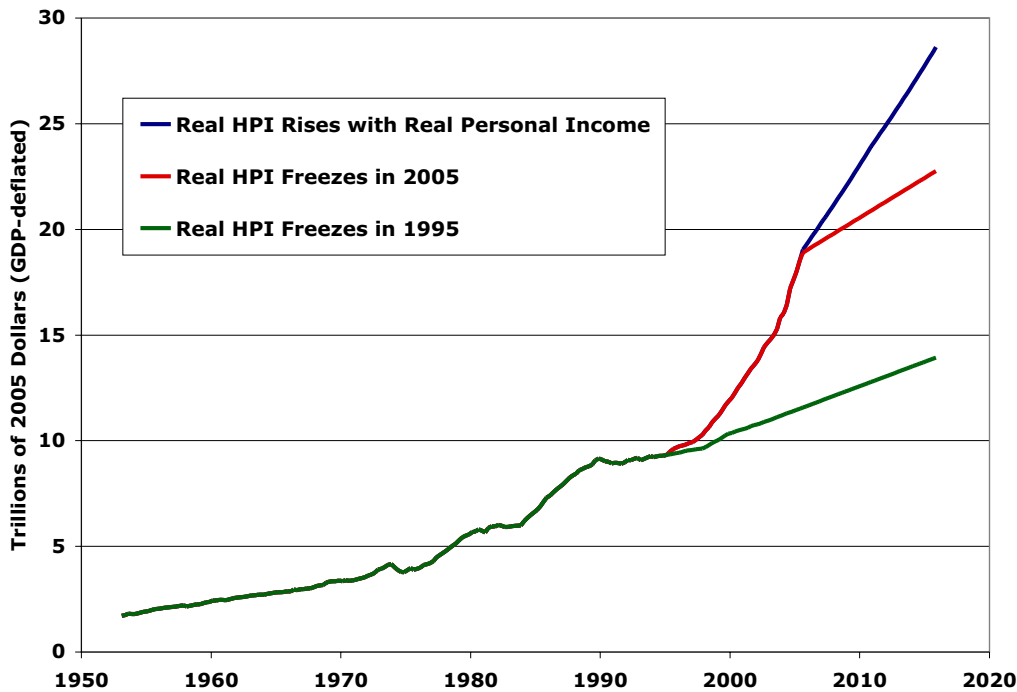
expect this rapid pace of construction to persist for the indefinite future badly erred in their projections for the housing market ten years ago.

The Housing Wealth Effect

There is a large body of economic research that supports the notion of a housing wealth effect on consumption of between 4 cents and 6 cents on the dollar. This means that for every dollar of additional housing wealth, consumption will rise between 4 and 6 cents. If house prices move at approximately the same pace as the overall inflation rate, as was the case prior to 1997, then housing will have little effect on the savings rate. However, if house prices outpace the overall rate of inflation, as has been the case since 1997, then it will lead to a sharply lower savings rate, a decline that we have actually witnessed, as the saving rate has turned negative in recent months.

Furthermore, if housing construction continues at its current rate – increasing housing wealth – and real house prices stay at current levels, it will imply a further decline in the savings rate. If real house prices just stay constant, and net housing construction remains at its average rate over the last three years (1.4 million units), then real housing wealth will rise to \$23 trillion by 2015 as shown in Figure 2 below.

This implies a gap in 2015 of \$8.3 trillion between the value of real estate assuming that housing prices remain constant in real terms over the next decade, and the value of residential real estate in 2015 if the house prices had stayed at their real 1997 level. This gap implies additional consumption through

Figure 2: Residential Housing Wealth

Source: OFHEO and authors' calculations.

the wealth effect of between 280 and 500 billion a year. This is equal to between 3 and 5 percent of projected disposable income. This trend in house prices would leave the savings rate at approximately its current level of -1.1 percent of disposable income.

This scenario describes an economy in which households are on average losing wealth (other than their homes) – getting poorer year by year. While this can happen for a period of time, no economist will argue that households can on average sustain a negative savings rate. Of course, this negative savings rate would be partially offset, if it were assumed that house prices continued to outpace the overall rate of inflation. This would allow household wealth to continue to grow, but housing wealth would increasingly displace non-housing wealth.

The top line in Figure 2 shows the trend in housing wealth, if real house prices continue to rise at the same pace over the next decade as real personal disposable income per-capita.¹⁰ This pattern in house prices is

consistent with the claims of economists who deny that there is a housing bubble, in part because they view it as normal for house prices to increase at the same rate as income. In this scenario, real housing wealth will reach \$29 trillion in 2015. The implied wealth effect would lead to a household savings rate of between -3.2 and -4.3 percent by 2015. While households in aggregate would have accumulated substantial housing wealth, they would be rapidly losing any other form of wealth. It is unlikely that any economist would want to argue that this is a plausible scenario. (These savings scenarios would look markedly worse if it is assumed that the government raises taxes at some point in the next decade to deal with its budget deficit.)

¹⁰ This projection assumes that disposable income grows at the same rate as real GDP per-capita as projected by CBO. This growth rate is much slower than the rate at which house prices have risen since 1997.

Conclusion

Most of the economists who expect this rapid pace of construction to persist for the indefinite future badly erred in their projections for the housing market ten years ago.

In this scenario, real housing wealth will reach \$29 trillion in 2015.

This paper has briefly examined three trends that strongly support the view that the recent run-up in house prices is driven by a speculative bubble, rather than fundamentals. First, it notes the unusual gap between the run-up in home sale prices and rents at both the national level and in many of the most inflated metropolitan markets. Such gaps are unusual, since the same forces that drive up home sale prices should also drive up rents, if they are being driven by fundamentals. When such gaps have developed in the past, they usually have been followed by sharp declines in house sale prices.

The second factor suggesting that the current run-up reflects a bubble is the extraordinary pace of home construction in recent years. The current pace is roughly 43 percent higher than the average pace of construction over the period from 1980 to 1997. This pace of construction substantially exceeds that rate of new household formation. It is also worth noting that virtually no economists projected a sharp price in home construction in the mid-nineties, so most of the economists who expect the current pace of housing construction to persist, badly erred in their projections for housing construction in the past.

Finally, the wealth effect resulting from the recent run-up in house prices has led to a sharp decline in the savings rate. In recent months, the savings rate has turned negative. If construction continues at its recent pace and real house prices stay at current levels, then the savings rate will become even more sharply negative over the next decade. If real house prices continue to rise at the same rate as they have over the last decade, then the

household savings rate could reach -4.3 percent in 2015.

It is not plausible that an economy will sustain a negative savings rate for any substantial period of time. This would imply that households' non-housing wealth is continually declining. The more likely scenario is that housing prices will fall back in line with their historic values.

The bulk of economists failed to recognize the stock bubble. As a result of this failure, tens of millions of workers lost much of their retirement savings in the crash. Many of the country's largest pension funds are now badly under-funded because their managers failed to recognize that the market was over-valued. In addition, the Congressional Budget Office overstated capital gains tax revenue by more than \$600 billion because it expected the stock bubble to persist indefinitely.

The costs of a collapse of the housing bubble will be even greater than the costs of the collapse of the stock bubble, because housing wealth is much more evenly held. The failure of the economics profession to adequately warn of the stock bubble was an act of extraordinary negligence. Missing the housing bubble is an even bigger mistake.